

CLAIMS

1. A process for making a coated optical lens blank free of visible fining lines which comprises :

- 5 (i) providing an optical article having at least one fined but unpolished geometrically defined main face ;
- (ii) providing a mold part having an internal and external surface;
- 10 (iii) depositing on said main face of said optical article or on the internal surface of the mold part a requisit amount of a liquid curable coating composition ;
- (iv) moving relatively to each other the optical article and the mold part to either bring the coating composition into contact with the main face of the optical article or into contact with the internal face of the mold part;
- 15 (v) applying pressure to the mold part to spread the liquid curable coating composition on said main face and form a uniform liquid coating composition layer onto the main face;
- 20 (vi) curing the liquid coating composition layer;
- (vii) withdrawing the mold part; and
- (viii) recovering the free of visible fining lines coated optical article.

25 2. The process of claim 1 wherein the liquid coating composition layer is cured under pressure.

 3. The process of claim 1 wherein said mold part is rigid and its internal face inversely replicates said main face of said optical article.

30 4. The process of claim 1 wherein said mold part is flexible and the geometry of its internal face inversely replicates said main face of said optical article under the pressure applied in step (v).

 5. The process of claim 1, wherein the curable liquid coating composition is a UV curable composition.

35 6. The process of claim 1, wherein the mold part is a transparent wafer.

7. The process of claim 5, wherein the mold part is a UV transparent wafer.

8. The process of claim 4, wherein the flexible part has a higher base curvature than the base curvature of the fined and unpolished optical article to be coated.

9. The process of claim 1, wherein the pressure exerted onto the mold part ranges from 10 kPa to 350 kPa.

10. The process of claim 1, wherein the pressure exerted onto the mold part ranges from 30 to 150 kPa.

11. The process of claim 4, wherein the flexible mold part is an inflatable flexible membrane.

12. The process of claim 4, wherein the flexible mold part has a thickness of 2 mm or less.

13. The process of claim 4, wherein the flexible mold part is made of flexible plastic material, preferably of polycarbonate or poly(methylmethacrylate).

14. The process of claim 1, wherein R_q of the fined but unpolished geometrically defined main face ranges from 0.01 to 1.5 μm .

15. The process of claim 1, wherein R_q of the fined but unpolished geometrically defined main face ranges from 0.1 to 1.0 μm .

16. The process of claim 1, wherein the optical article is made of polycarbonate.

17. The process of claim 13, wherein said main face of the optical article has a R_q of about 0.5 μm .

18. The process of claim 1, wherein the optical article is made of diethylene glycol bis-allylcarbonate, polycarbonate, polythiourethane or episulfide material.

19. The process of claim 18, wherein said main face of the optical article has a surface roughness S_q of about 1.0 μm .

20. The process of claim 1, wherein the cured coating has a thickness of 1 to 50 μm .

21. The process of claim 1, wherein the cured coating has a thickness of 1 to 25 μm .

22. The process of claim 1, wherein the cured coating has a thickness of 1 to 10 μm , and preferably less than 5 μm .

23. The process of claim 1, wherein the refractive index difference between the lens blank and the cured coating is up to 0.1.

21. The process of claim 1, wherein the coating composition is an anti-abrasive hard coating composition.

5 22. The process of claim 1, wherein the said main face of the lens blank is the back face of the lens blank.

23. The process of claim 1, wherein the lens blank is a tinted lens blank.

10 24. The process of claim 1, further comprising applying an anti-reflective coating directly onto the cured coating.

25. The process of claim 1, wherein said optical article is a lens or lens blank.

26. The process of claim 1, wherein said optical article is a transparent lens mold.

15 27. The process of claim 25 wherein said optical article is a tinted lens or lens blank.

28. The process of claim 26 wherein said lens mold is a glass mold.

20 29. The process of claim 25, wherein the said main face of the lens or lens blank is the back face of the lens or lens blank.

30. The process of claim 1, further comprising applying an anti-reflective coating directly onto the cured coating.

31. A process for making a coated article whose main surface has a surface state corresponding to a polished state which comprises :

25 (i) providing an article having at least one finely but unpolished geometrically defined main face ;

(ii) providing a mold part having an internal and external surface ;

30 (iii) depositing on said main face of said article or on the internal surface of the mold part a requisite amount of a liquid curable coating composition;

(iv) moving relatively to each other the article and the mold part to either bring the coating composition into contact with the main face of the article or into contact with the internal face of the mold part ;

(v) applying pressure to the mold part to spread the liquid curable coating composition on said main face and form a uniform liquid coating composition layer onto the main face of the article;

(vi) curing the liquid composition layer;

5 (vii) withdrawing the mold part and

(viii) recovering the coating article having a surface state corresponding to a polished state.

32. The process according to claim 31, wherein the surface of the coated article has a R_q under $0.01\ \mu\text{m}$.

10 33. The process according to claim 32 wherein to claim 32 wherein the coated article is a lens mold.

34. The process according to claim 33 wherein the lens mold is not transparent.

15 35. the process of claim 1 wherein the mold part is precoated by a release coating and/or protective coating.

36. The process of claim 1 wherein the mold part has a microstructure or a pattern to be duplicated in the lens blank coating.

37. The process of claim 31 wherein the mold part is precoated by a release coating and/or protective coating.

20 38. The process of claim 31 wherein the mold part has a microstructure or a pattern to be duplicated in the lens blank coating.